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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/603,078	06/25/2003	Kenji Matsumoto	Q76242	1880
23373	7590	02/22/2005	EXAMINER	
SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037			CONNELLY CUSHWA, MICHELLE R	
			ART UNIT	PAPER NUMBER
			2874	

DATE MAILED: 02/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/603,078

Applicant(s)

MATSUMOTO ET AL.

Examiner

Michelle R. Connelly-Cushwa

Art Unit

2874

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,3,5,7,9,12 and 15 is/are rejected.
- 7) ☒ Claim(s) 2,4,6,8,10,11,13,14 and 16 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

Four (4) sheets of formal drawings were filed on June 25, 2003 and have been accepted by the Examiner.

Specification

Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Nishimura (JP 11-289317 A).

Regarding claim 1; Nishimura discloses a transmission apparatus using a plastic fiber (102), comprising:

- a plastic fiber (102), and
- a photodetector (104) for detecting light, which has been propagated through the plastic fiber,

- wherein the photodetector (104) comprises a plurality of semiconductor light receiving devices, whose light receiving sensitivity wavelength regions are identical with one another, each of the semiconductor light receiving devices having a light receiving area smaller than a cross-sectional area of a core of the plastic fiber (102).

Regarding claim 5; the plurality of semiconductor light receiving devices are formed on a single same base plate.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3, 7, 9, 12 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishimura (JP 11-289317 A).

Regarding claim 3; Nishimura discloses all of the limitations of claim 3 as applied above, except for having the response band of the light receiving devices be at least 1 GHz. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the light receiving device have a response band of at least 1 GHz in order to be able to detect light over a band of at least 1 GHz so that the device may be used with bands having a width of 1 GHz or more, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art (*In re Aller*, 105 USPQ

Art Unit: 2874

233), and discovering an optimum value of a result effective variable involves only routine skill in the art (*In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980)).

Regarding claim 7; Nishimura discloses all of the limitations of claim 7 as applied above, except for each of the plurality of semiconductor light receiving devices being connected to one of a plurality of independent amplifiers. It is common practice in the art to amplify the output of a photodetector to provide an output that is strong. Therefore, one of ordinary skill in the art would have found it obvious to connect an independent amplifier to any photodetector, including connecting an independent amplifier to each photodetector in the device of Nishimura in order to provide a strong output signal from each of the semiconductor light receiving devices in the invention of Nishimura.

Regarding claim 9; Nishimura discloses all of the limitations of claim 9 as applied above, except for explicitly stating that the plurality of the semiconductor light receiving devices are electrically isolated from one another. Nishimura discloses that the plurality of semiconductor light receiving devices are spaced apart on the substrate and that each semiconductor light receiving device forms an independent photodetector region. Therefore, one of ordinary skill in the art would have found it obvious to have the semiconductor light receiving devices be electrically isolated from one another so that they operate separately in corresponding regions of the substrate.

Regarding claim 12; Nishimura discloses all of the limitations of claim 12 as applied above, except for the plurality of semiconductor light receiving devices being formed on a plurality of independent base plates. One of ordinary skill in the art would

Art Unit: 2874

have found it obvious to form the plurality of semiconductor light receiving devices on a plurality of independent base plates in order to allow the devices to be independently positioned so that the position of each device may be independently adjusted, since it has been held that constructing a formerly integral structure in various elements involves only routine skill in the art (*Nerwin v. Erlichman*, 168 USPQ 117, 179).

Regarding claim 15; Nishimura discloses all of the limitations of claim 15 as applied above, except for the plastic fiber being a graded index type of fiber. Nishimura does not disclose that any particular type of plastic optical fiber must be used in the invention, thereby indicating a lack of criticality and suggesting to one of ordinary skill in the art that any type of known optical fiber may be employed in the invention.

Therefore, one of ordinary skill in the art would have found it obvious to use a graded index type of fiber in the invention of Nishimura to collimate and/or focus the light transmitted through the fiber as desired, since Nishimura does not teach that a specific fiber is used and graded index type fibers are known and readily available in the art.

Allowable Subject Matter

Claims 2, 4, 6, 8, 10, 11, 13, 14 and 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The prior art cited on attached form PTO-892 is the most relevant prior art known, however, the invention of claims 2, 4, 6, 8, 10, 11, 13, 14 and 16 is allowable over the prior art of record for the following reasons.

Regarding claims 2, 4, 6, 8 and 16; the claims are allowable over the prior art of record because none of the references either alone or in combination disclose or render obvious an apparatus as defined in claim 2, wherein the plurality of the semiconductor light receiving devices are located such that the plurality of the semiconductor light receiving devices directly receive the light, which is radiated out from the plastic fiber, without an optical system intervening between the plastic fiber and the semiconductor light receiving devices in combination with the other limitations of claim 2. Claims 4, 6, 8 and 16 depend from claim 2.

Regarding claims 10 and 11; the claims are allowable over the prior art of record because none of the references either alone or in combination disclose or render obvious an apparatus as defined in claim 10, wherein the base plate has a rectangular shape and is divided into four subregions, which are arrayed in two columns and in two rows, and each of the semiconductor light receiving devices is formed on one of the four subregions of the base plate in combination with the limitations of the base claim. Claims 11 depends from claim 10.

Regarding claims 13 and 14; the claims are allowable over the prior art of record because none of the references either alone or in combination disclose or render obvious an apparatus as defined in claim 13, wherein each of the base plates has a rectangular shape, and the base plates are constituted of four base plates, which are arrayed in two columns and in two rows in combination with the limitations of the base and intervening claims. Claim 14 depends from claim 13.

Hence, there is no reason or motivation for one of ordinary skill in the art to use the prior art of record to make the invention of claims 2, 4, 6, 8, 10, 11, 13, 14 and 16.


Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Schunk (US 2003/0053769 A1) discloses a transmission and reception configuration for bi-directional optical data transmission.

Any inquiry concerning the merits of this communication should be directed to Examiner Michelle R. Connelly-Cushwa at telephone number (571) 272-2345. The examiner can normally be reached 9:00 AM to 7:00 PM, Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney B. Bovernick can be reached on (571) 272-2344. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general or clerical nature should be directed to the Technology Center 2800 receptionist at telephone number (571) 272-1562.


Michelle R. Connelly-Cushwa
Patent Examiner
February 17, 2005